

1. A therapeutic method comprising administering to a patient N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing at least one of a dopaminic antagonist effect, a serotonergic antagonist effect, an  $\alpha$  adrenergic antagonist effect, a histaminic antagonist effect, a muscarinic antagonist effect, a sodium ion channel antagonist effect, and a calcium ion channel antagonist effect.  
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2. The method of claim 1 wherein NDM LMP is administered to achieve at least one of an antiemetic effect, an antipruritic effect, or to control symptoms of BPH at a dose in the range of about 1 mg/day to about 50 mg/day for enteral administration or at a fraction thereof for non-enteral administration  
5 as a function of the absolute bioavailability value of NDM LMP.
3. The method of claim 1 wherein NDM LMP is administered to achieve at least one of an analgesic effect or migraine therapy effect at a dose in the range of about 5 mg/day to about 250 mg/day for enteral administration or at a fraction thereof for non-enteral administration as a function of the absolute  
5 bioavailability value of NDM LMP.
4. The method of claim 1 wherein NDM LMP is administered to achieve at least one of an antipsychotic effect, a sedative effect, or an anxiolytic effect at a dose in the range of about 50 mg/day to about 1000 mg/day for enteral administration or at a fraction thereof for non-enteral administration as a function of the absolute bioavailability value of NDM LMP.

5.           The method of claim 1 administering NDM LMP at a dose effective to achieve substantially the same steady state serum concentration as achieved by LMP as combined LMP and NDM LMP serum concentration when LMP is administered by the same route.
  
6.           The method of claim 1 wherein NDM LMP is administered at a relatively lower dose as an antiemetic, antipruritic, and to control symptoms of BPH, at a relatively higher dose as an antipsychotic, sedative, and anxiolytic, and at a dose higher than the lower dose and lower than the higher dose as an  
5   analgesic.
  
7.           The method of claim 1 wherein NDM LMP is administered in an amount ranging between about 5 mg to about 250 mg for an antihypertensive effect.

8. A therapeutic method comprising providing to a patient a composition producing substantially the same pharmaceutical effects as levomepromazine (LMP) by administering to the patient N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation.
9. The method of claim 8 wherein NDM LMP is administered at a dose effective to achieve substantially the same steady state serum concentrations as achieved by LMP as combined LMP and NDM LMP serum concentration when LMP is administered by the same route.
10. The method of claim 8 wherein the pharmaceutical effects of a sulfoxide LMP metabolite are reduced.

11. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing a dopaminic antagonist effect.
12. The method of claim 11 wherein the antagonist effect is to at least one of D<sub>1</sub> receptors, D<sub>2</sub> receptors, D<sub>3</sub> receptors, or D<sub>5</sub> receptors.

13. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing a serotonergic antagonist effect.
14. The method of claim 13 wherein the antagonist effect is to at least one of 5-HT<sub>2A</sub> receptors, 5-HT<sub>2C</sub> receptors, 5-HT<sub>2B1</sub> receptors, 5-HT<sub>5A</sub> receptors, or 5-HT<sub>7</sub> receptors.

15. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing a  $\alpha$  adrenergic antagonist effect.
16. The method of claim 15 wherein the antagonist effect is to at least one of  $\alpha_{1A}$  receptors,  $\alpha_{1B}$  receptors,  $\alpha_{1C}$  receptors,  $\alpha_{2A}$  receptors,  $\alpha_{2B}$  receptors, or  $\alpha_{2C}$  receptors.

17. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing a histaminic antagonist effect.
18. The method of claim 17 wherein the antagonist effect is to H<sub>1</sub> receptors.

19. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing a muscarinic antagonist effect.
20. The method of claim 19 wherein the antagonist effect is to at least one of M<sub>1</sub> receptors, M<sub>2</sub> receptors, M<sub>3</sub> receptors, M<sub>4</sub> receptors, or M<sub>5</sub> receptors.



21. A therapeutic method comprising administering to a patient a composition comprising N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for providing an ion channel antagonist effect.
22. The method of claim 21 wherein the ion channel is a sodium ion channel, a calcium ion channel, or both a sodium ion channel and a calcium ion channel.

23. A therapeutic method comprising orally administering to a patient N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation for therapy with reduced  $\alpha$  adrenergic antagonist effects and reduced histaminic antagonist effects relative to administering levomepromazine.
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24. The method of claim 23 wherein the reduced effects include at least one of sedation and hypotension.

25. A therapeutic method comprising administering to a patient a pharmaceutical composition comprising N-desmethyl levomepromazine (NDM LMP) in an effective amount for levomepromazine therapy substantially free of a sulfoxide metabolite of levomepromazine.

26. A composition comprising an amount of an isolated N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation to provide at least one of an analgesic, antiemetic, antipsychotic, sedative, anxiolytic, antisialogogic, amnesic, antihypertensive, anti-pruritic, migraine therapy, and control of symptomatic benign prostatic hyperplasia effect.
27. The composition of claim 26 containing NDM LMP at a dose in the range of about 1 mg/day to about 1000 mg/day formulated for oral administration.
28. The composition of claim 26 containing NDM LMP at a dose in the range of about 0.5 mg/day to about 400 mg/day formulated for parenteral administration.
29. The composition of claim 26 containing NDM LMP at a dose in the range of about 5 mg/day to about 250 mg/day formulated for oral administration.
30. The composition of claim 26 containing NDM LMP at a dose in the range of about 1 mg/day to about 50 mg/day formulated for oral administration.
31. The composition of claim 26 containing NDM LMP at a dose in the range of about 50 mg/day to about 1000 mg/day formulated for oral administration.

32. The composition of claim 26 containing NDM LMP at a dose up to about 250 mg/day for oral administration.
33. The composition of claim 26 formulated for at least one of human use and veterinary use.
34. The composition of claim 26 in a formulation chosen from at least one of oral, injectable, topical, dermal, transdermal, buccal, sublingual, intranasal, intraspinal, intrathecal, ophthalmic, otic, inhalation, rectal, or vaginal.
35. The composition of claim 26 wherein the formulation is chosen from at least one of a solid, a liquid, a solution, an emulsion, a suspension, a syrup, an elixir, a gel, a capsule, a tablet, a gum, a caplet, a pill, a powder, a granule, or a cachet.
36. The composition of claim 26 substantially free of a sulfoxide levomepromazine metabolite.

37. A composition comprising isolated N-desmethyl levomepromazine (NDM LMP) in a pharmaceutically acceptable formulation at a dose in the range of about 1 mg/day to about 1000 mg/day formulated for enteral administration as a function of the absolute bioavailability value of NDM LMP for non-enteral formulation.
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